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REMARKS/ARGUMENTS

I.

Favorable reconsideration of this application as presently amended is respectfully requested.

Claims 21-23, 35 and 36 are presently active in the application. Claims 1-20 and 24-34 have been cancelled. Claims 30-34 are cancelled by the present amendment. Those claims were prosecuted to issue in parent application 09/053,050 now U.S. Patent No. 6,287,504. The parent application included a restriction requirement and an election of species in the office action mailed November 30, 1999. As a result of that restriction requirement and election of species requirement, claims 30-34 were prosecuted in the parent application. Divisional applications have been filed with respect to claims 1-20, 21-23 (the present application) and claims 24-29. In the preliminary amendment filed with the present application, claims 30-34 were inadvertently not canceled. Claims 35-36 have been added by the present amendment.

II.

A substitute specification was required in parent application serial No. 09/053,050 and applicants were required to file proposed drawing changes in divisional application serial No. 09,878,977. A substitute specification and the proposed drawing changes were also filed in divisional application serial No. 09/878,987. The present application, the '977 application, and the '987 application are all divisional applications off of application serial No. 09/053,050. Accordingly, applicants have submitted the proposed drawing changes and a substitute specification herewith. Applicants respectfully submit that the proposed drawing changes and the substitute specification do not add new matter.

Applicants have further submitted a letter to the examiner requesting approval of the annotated sheets showing drawing changes and corrected drawing sheets.

II.

The rejections of claims 30-34 under 35 USC 112, second paragraph, claims 31, 33, and 34 under 35 USC 102(b) and claims 30 and 32 under 35 USC 102(b) or 35 USC 103(a) are moot because those claims have been cancelled.

III.

Claims 21-23 stand rejected under 35 USC 103(a) as being unpatentable over the admitted prior art of prior art 3 as set forth on page 3-4 of the instant specification and exemplified by Japanese document 6-304973. This rejection is respectfully traversed with respect to claim 21-23 as presently amended.

Claim 21 has been amended to recite that the compressed air causes the molten material to sink away from the vent hole and further recites “providing a at least one step in said non-transfer surface between said vent hole and said at least one transfer surface to prevent sinking of the molten material from proceeding from said at least one non-transfer surface to said at least one transfer surface.” This step is shown, for example, by the element 26 in the molten material 20 formed by the indentation 6 in the sink element 16 of the mold assembly 10 as illustrated in Fig. 7B and as described, for example, on page 13 line 9-page 14 line 2 and with respect to Embodiments 1-10 on pages 12-20 of the substitute specification. The applied reference fails to teach or suggest placing a step between the vent hole and the transfer surface in order to preclude the sunken area around the vent hole from proceeding to the transfer surface. Accordingly, applicant submits that claim 21 is allowable.

Claims 22, 23, 35 and 35 depend either directly or indirectly from claim 21. The formation of a plurality of steps in the molding as set forth in claim 35 are shown, for example, in Fig. 7A and the formation of a step in the molding completely surrounds the vent hole as set forth in claim 36 is shown, for example, in Figs. 8 and 9A. Accordingly, those claims are allowable for the reasons stated above with regard to claim 21.

IV.

As requested on page 4 of the outstanding Office Action, copies of the prior art referred to on pages 2-7 of the specification are submitted herewith together with the available English language abstracts.

V.

For the reasons stated above applicant respectfully request favorable reconsideration and allowance of claims 21-23, 35 and 36.

Respectfully submitted,

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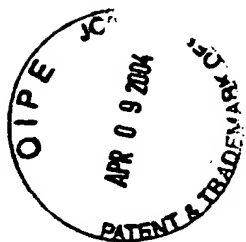


Fig. 1 PRIOR ART

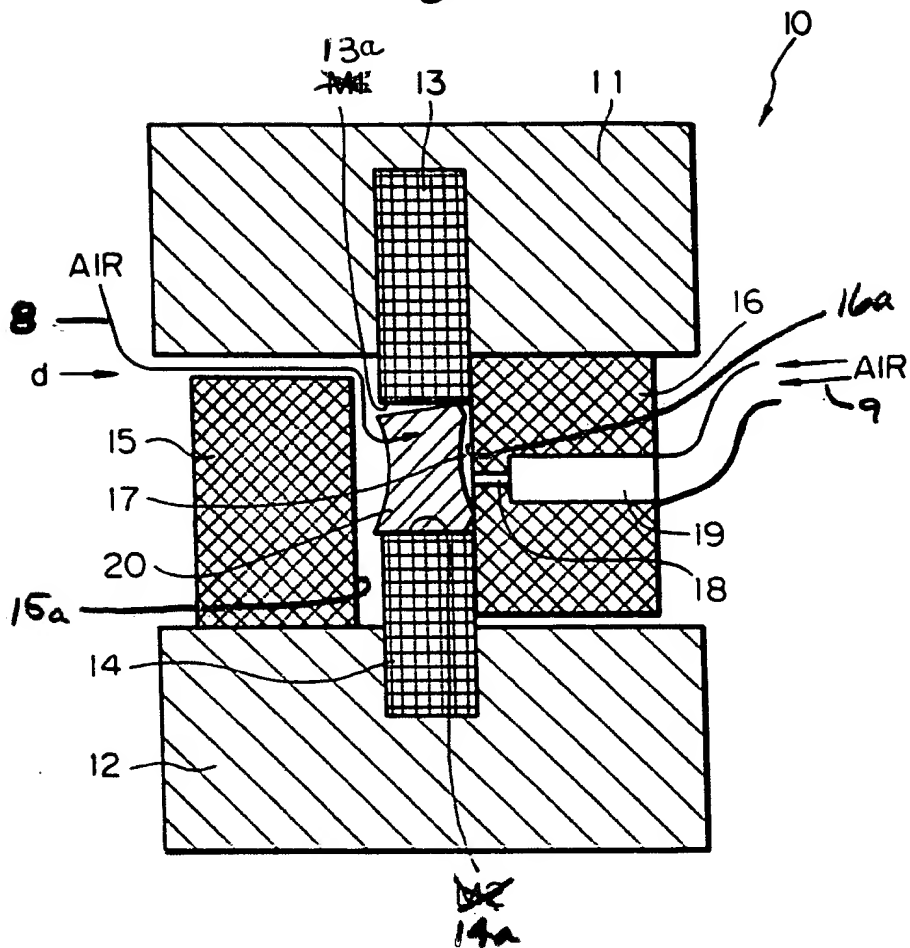
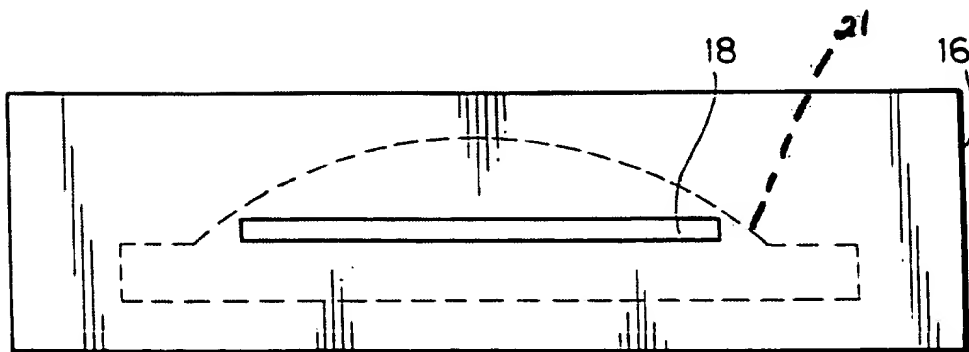


Fig. 2 PRIOR ART



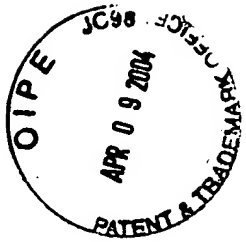


Fig. 3A PRIOR ART

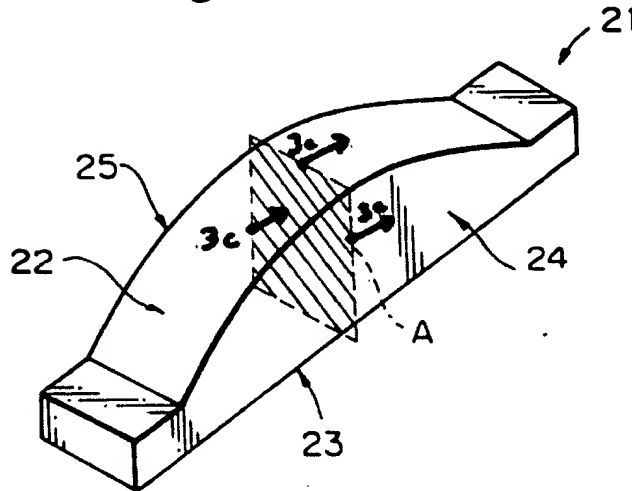


Fig. 3B PRIOR ART

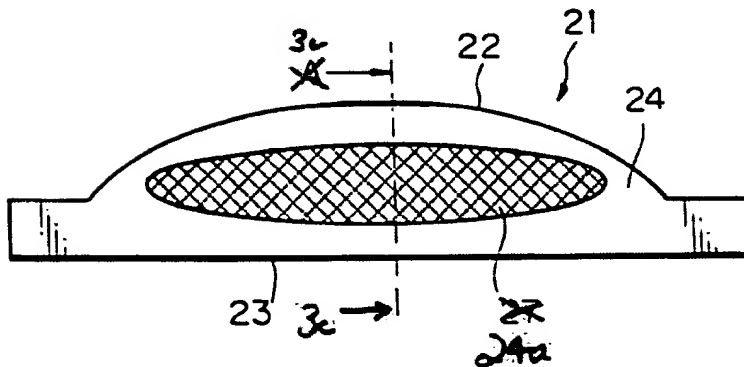


Fig. 3C

PRIOR ART

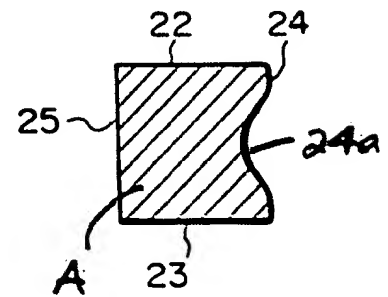


Fig. 4A PRIOR ART

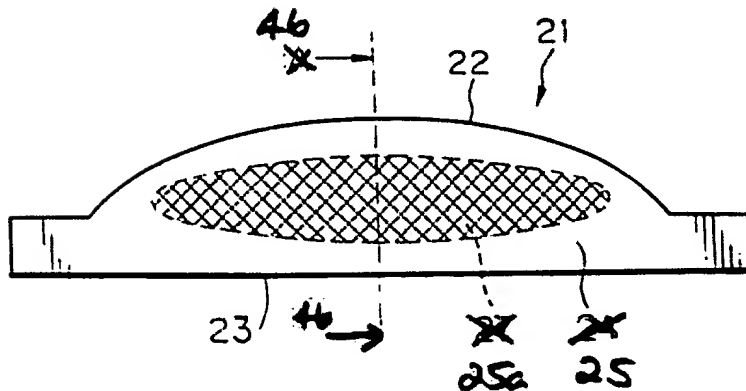
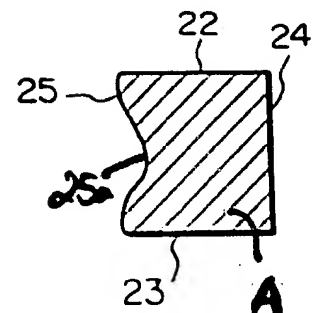


Fig. 4B

PRIOR ART



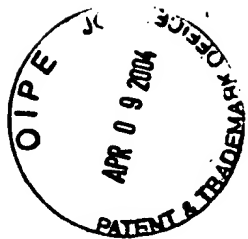


Fig. 5A PRIOR ART

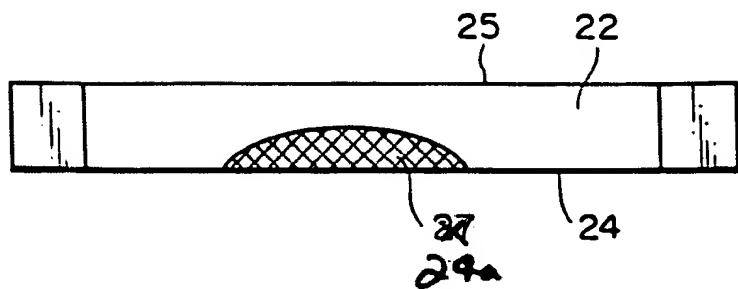


Fig. 5B PRIOR ART

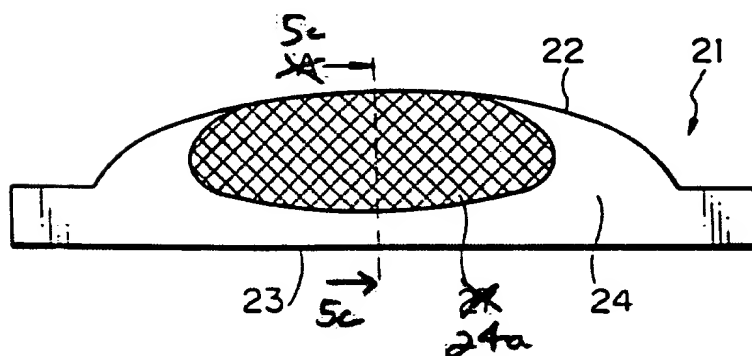


Fig. 5C

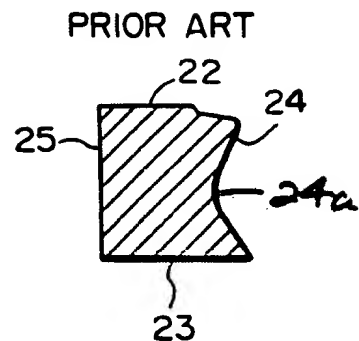
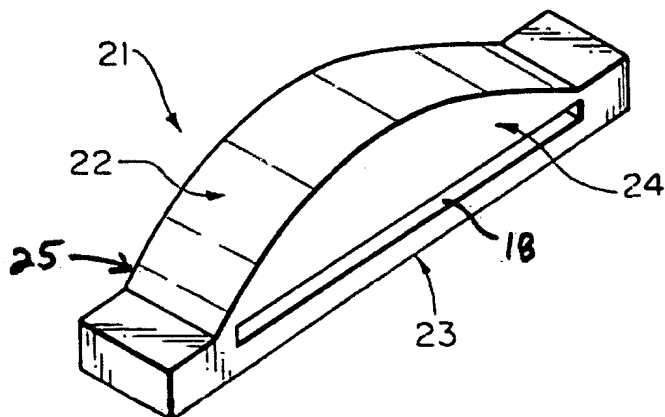


Fig. 6
PRIOR ART



OIP E JC
 APR 09 2004
 PATENT & TRADEMARK OFFICE

OBLON, SPIVAK, et al.
 Docket No: 208402US3DIV
 Inventor: Toshihiro KANEMATSU, et al.
 Serial No: 09/878,991
 Reply to OA dated: December 9, 2003
 Annotated Sheets Showing Changes

Fig. 7A

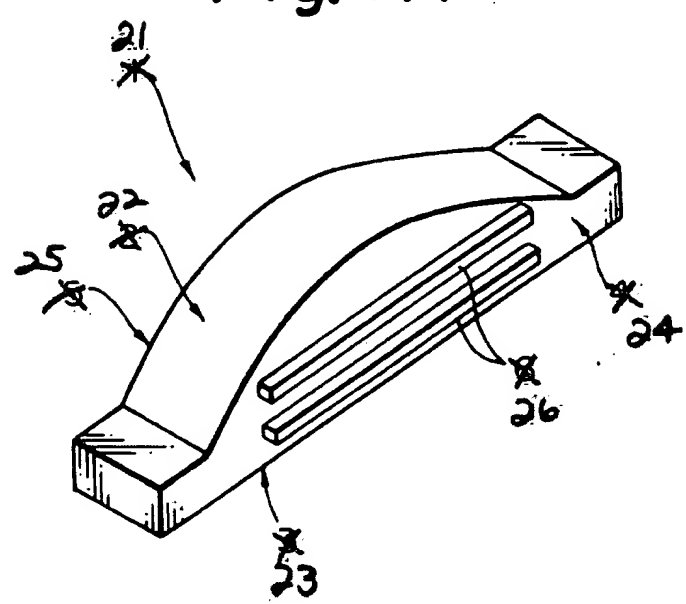
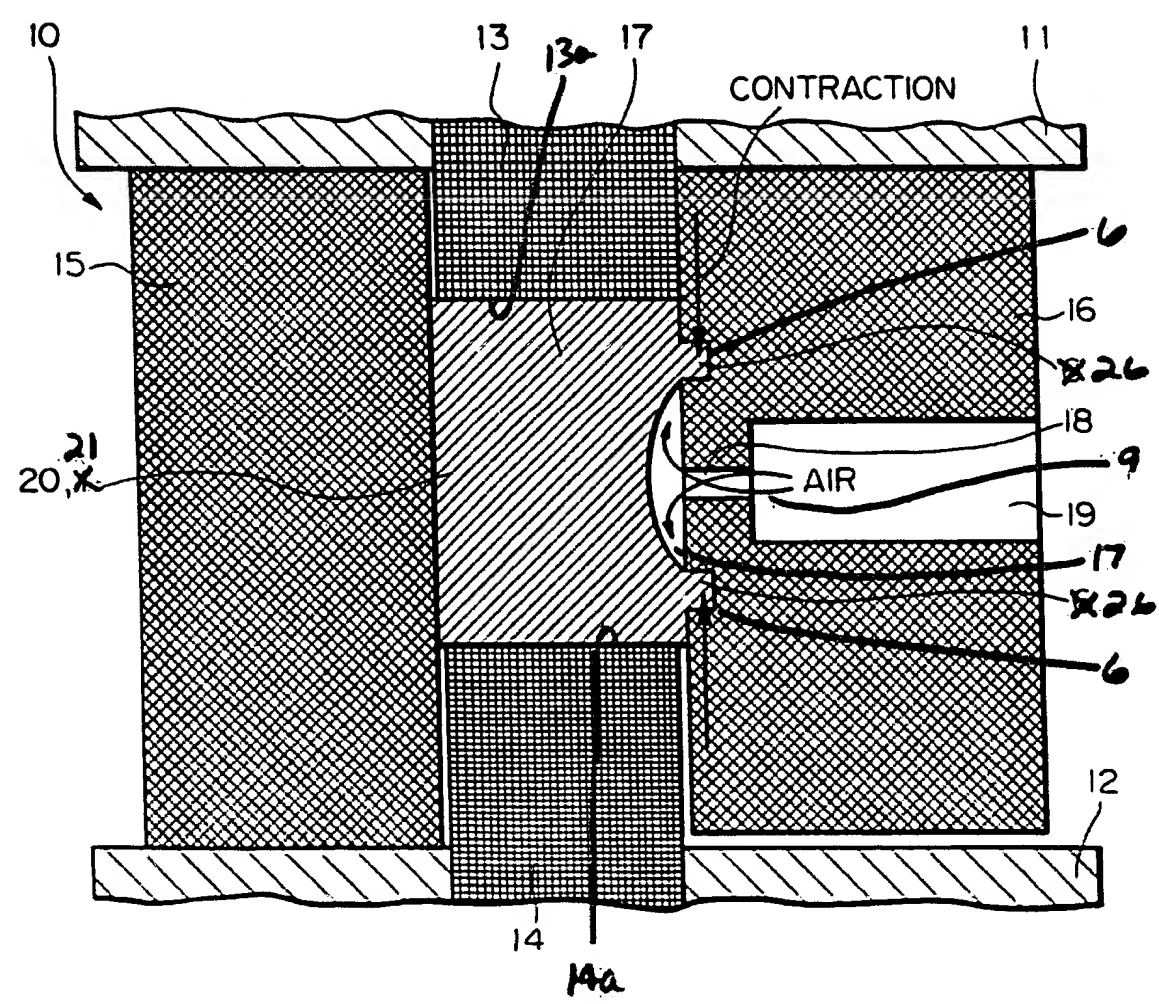


Fig. 7B



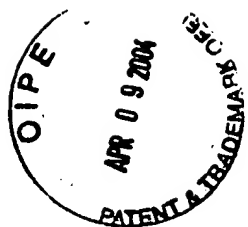


Fig. 8

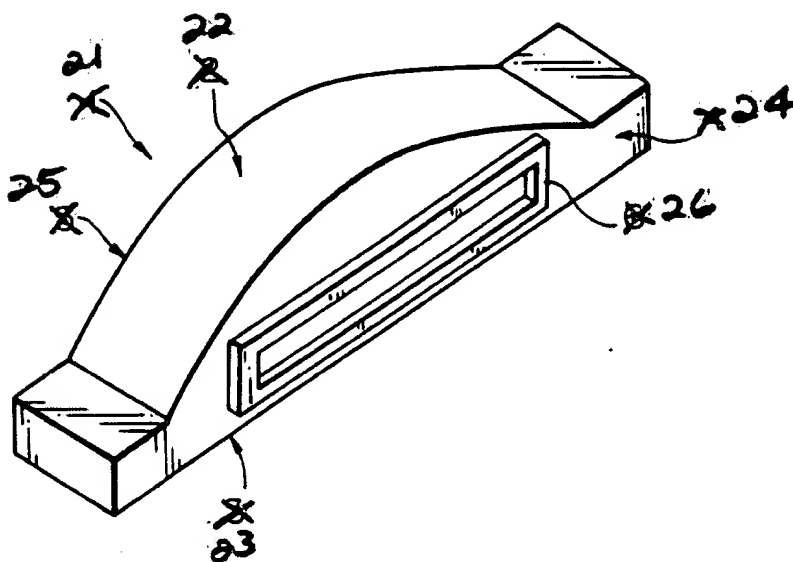


Fig. 9A

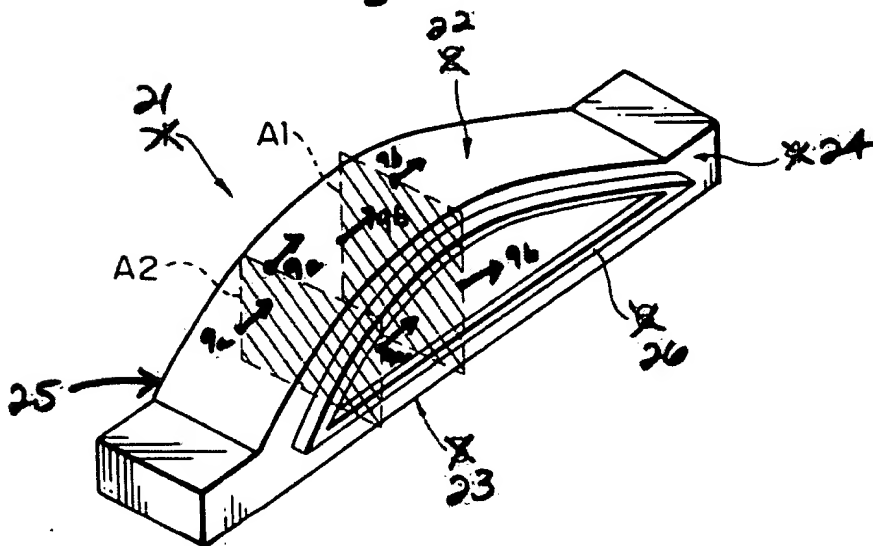


Fig. 9B

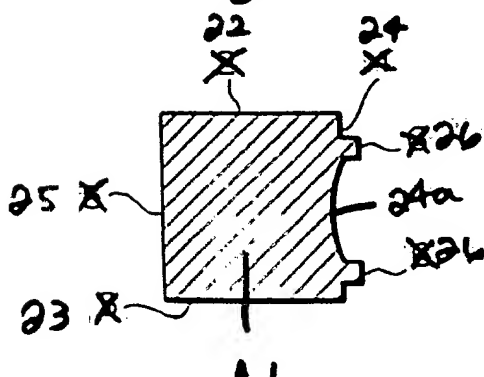
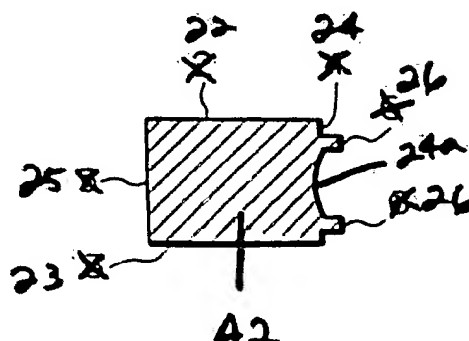


Fig. 9C



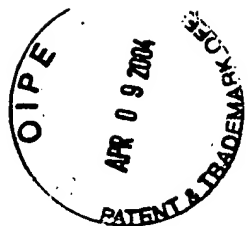


Fig. 10A

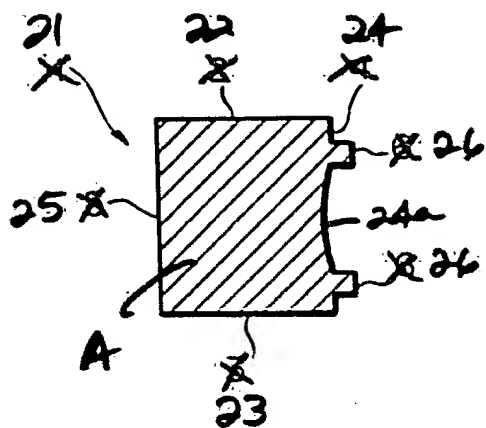


Fig. 10B

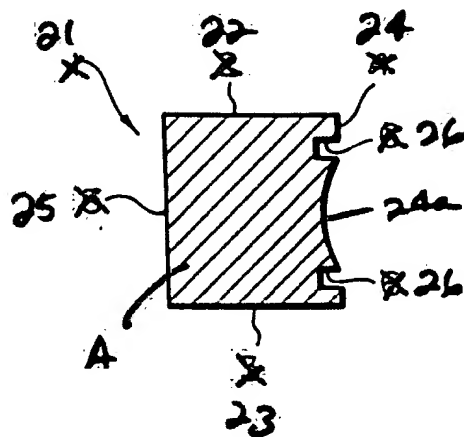


Fig. 11A

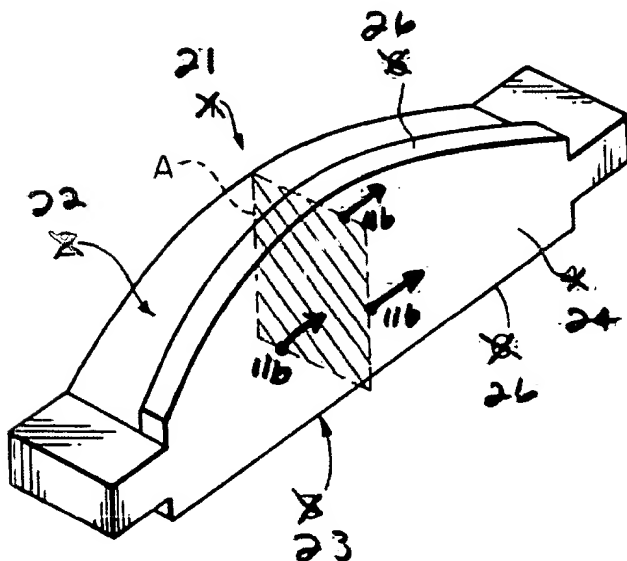
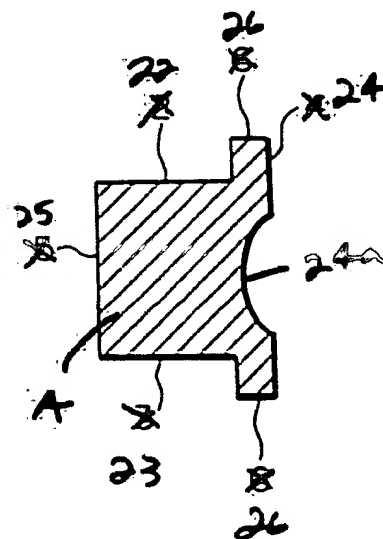


Fig. 11B



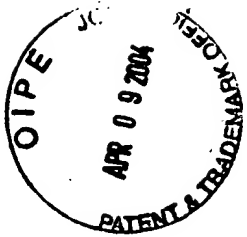


Fig. 12A

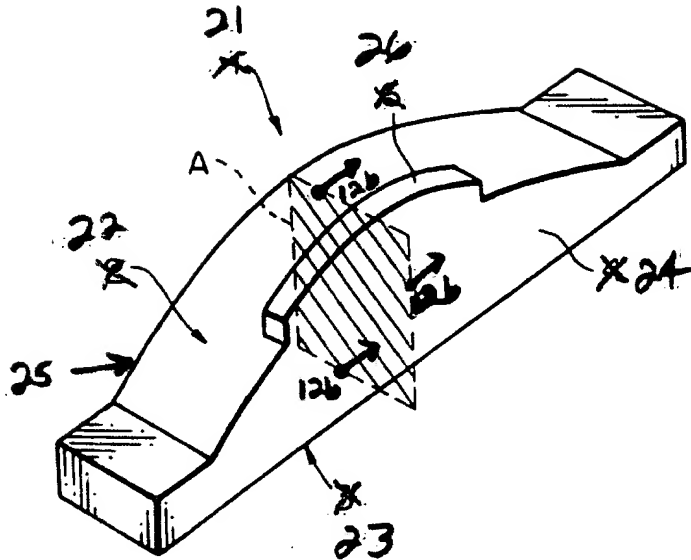


Fig. 12B

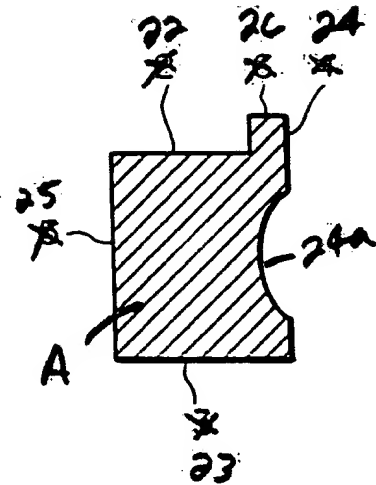


Fig. 13A

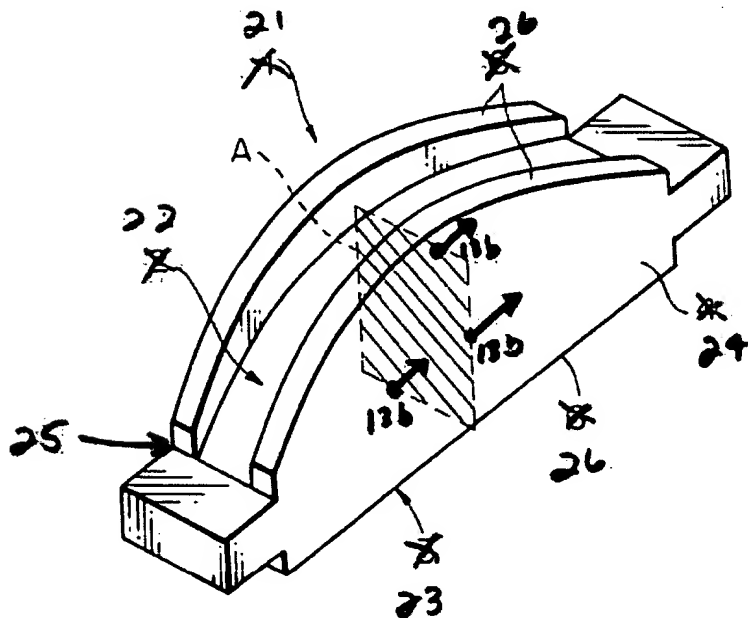
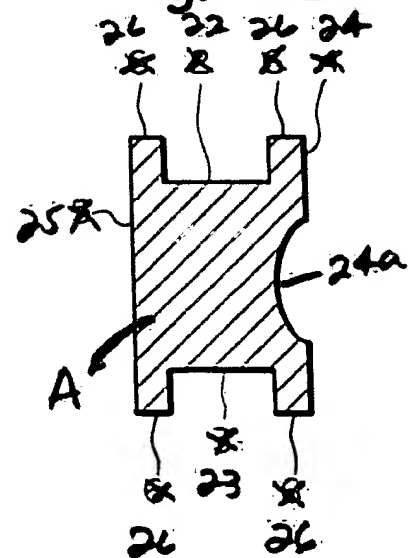


Fig. 13B



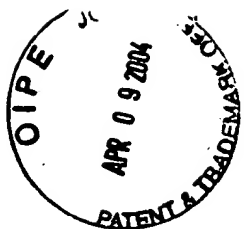


Fig. 14A

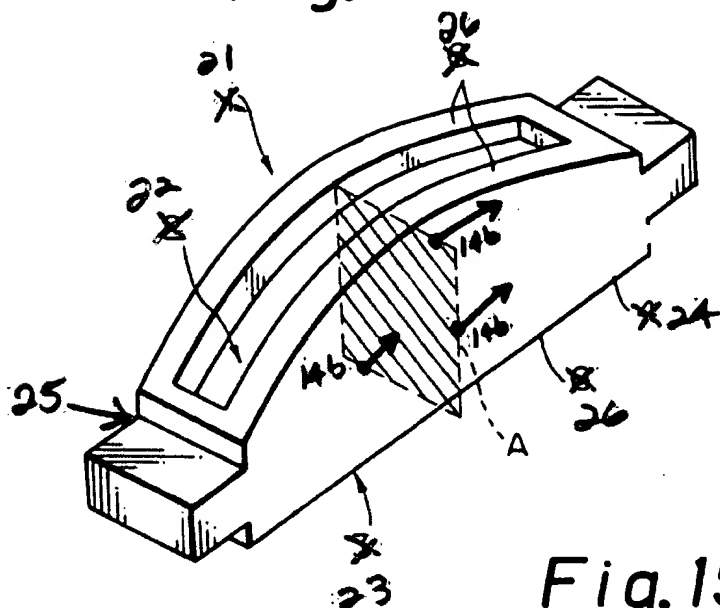


Fig. 14B

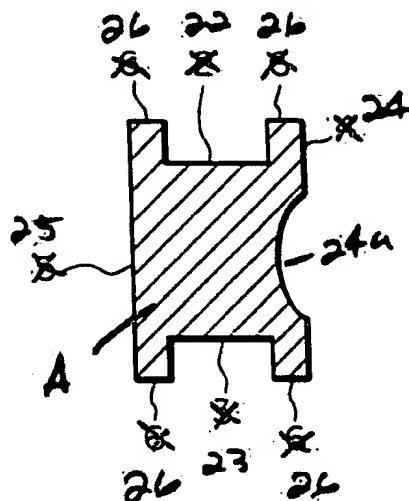


Fig. 15

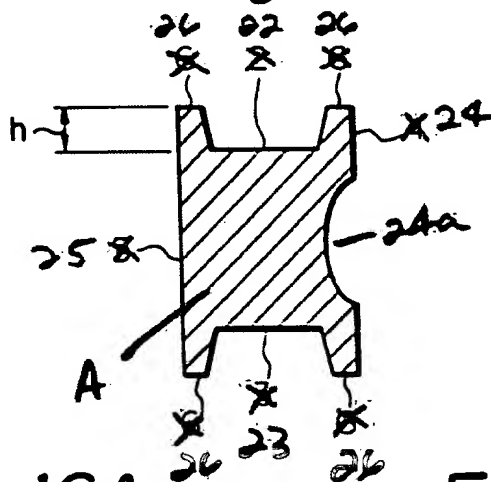


Fig. 16A

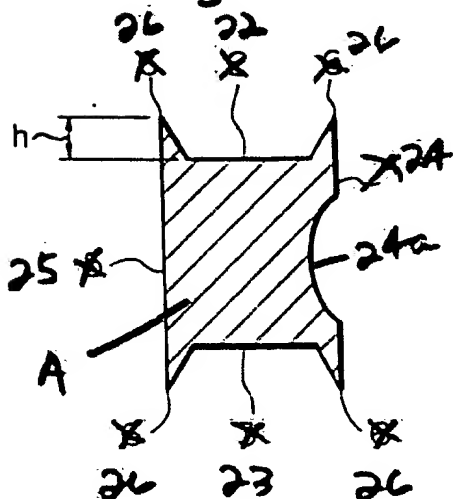
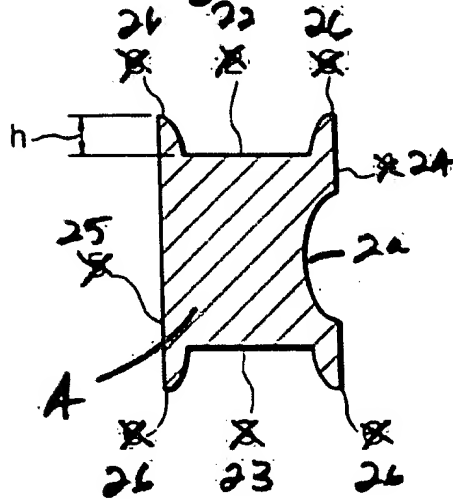


Fig. 16B



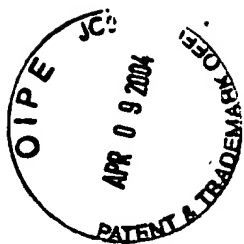


Fig. 17A

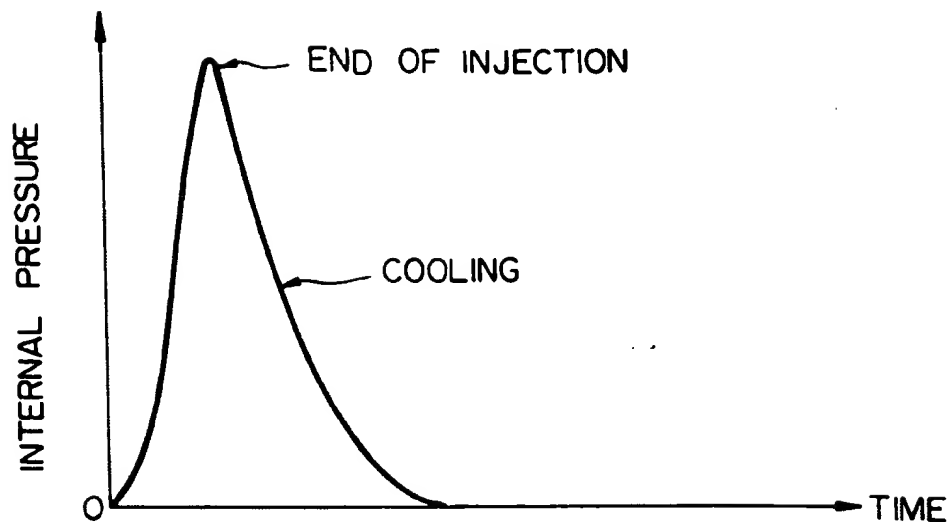


FIG. 17B

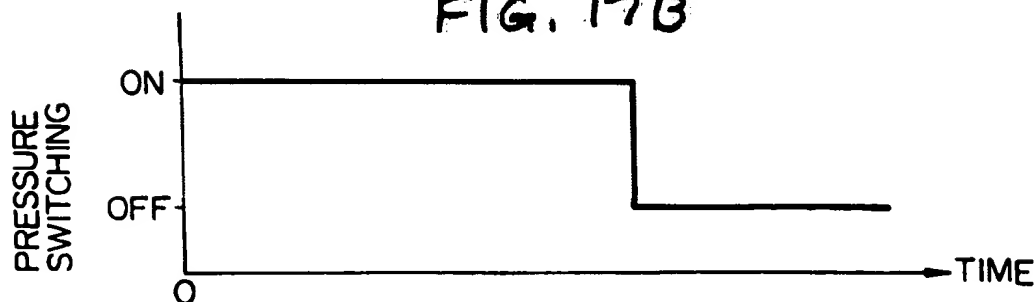
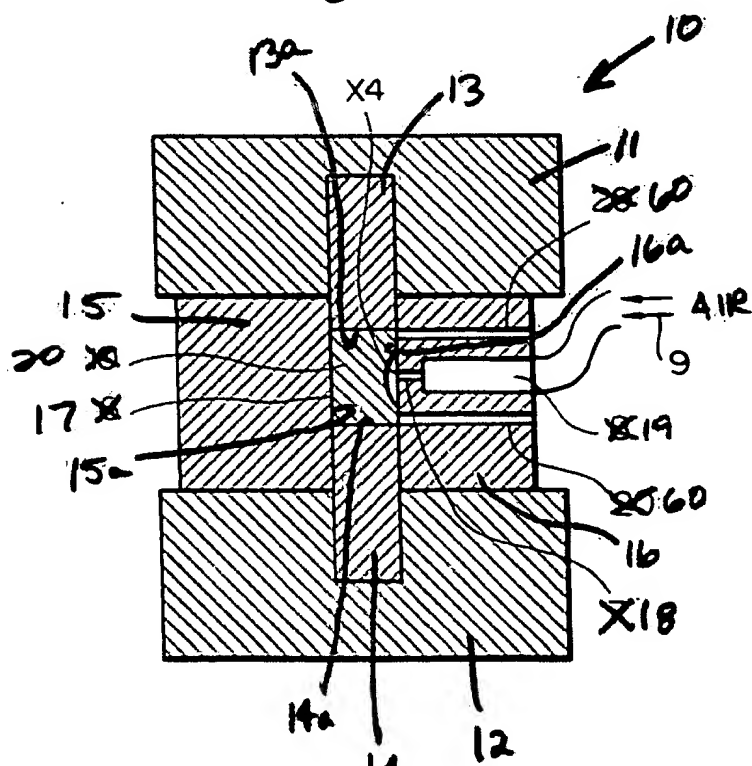


Fig. 18



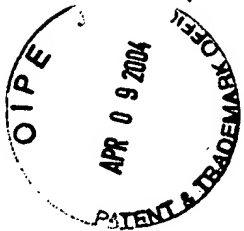


Fig. 19

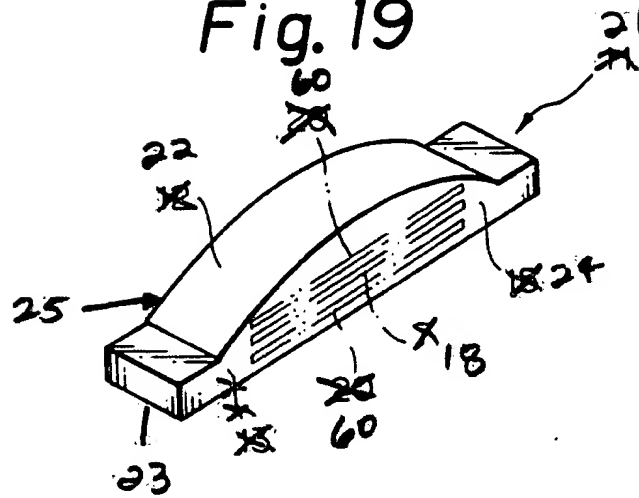


Fig. 20

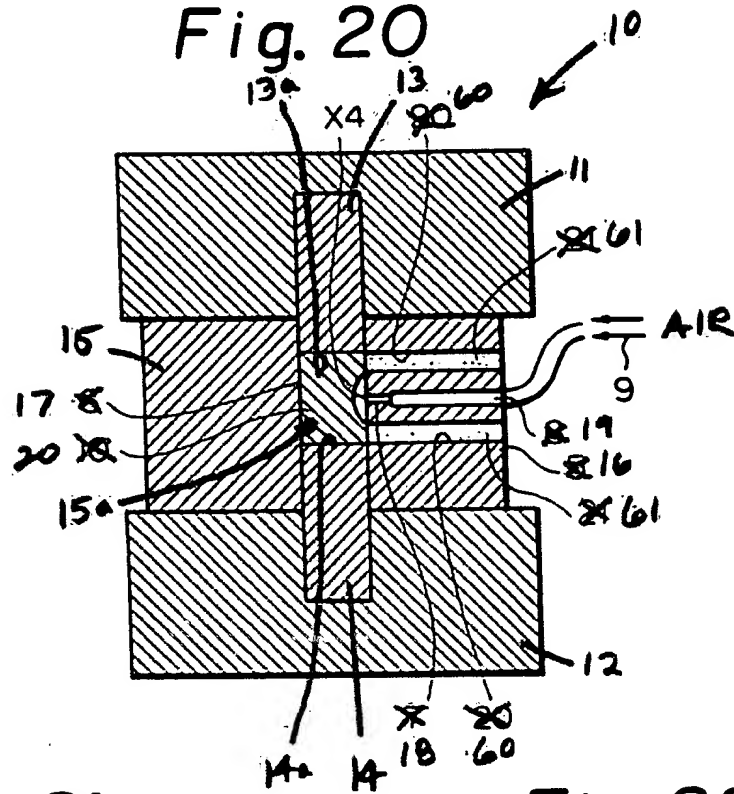


Fig. 21

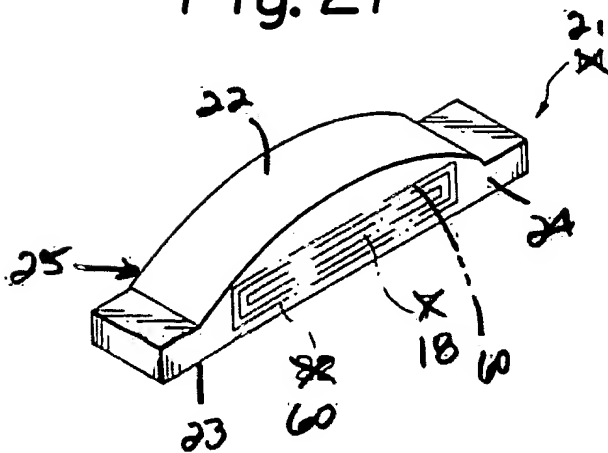
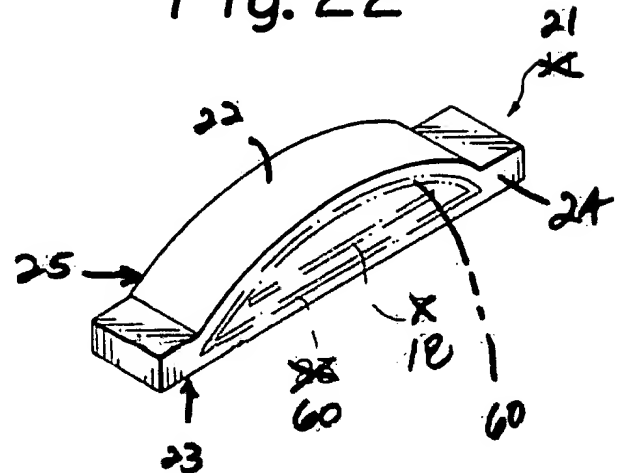


Fig. 22



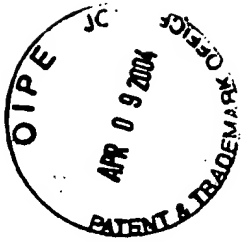


Fig. 23A

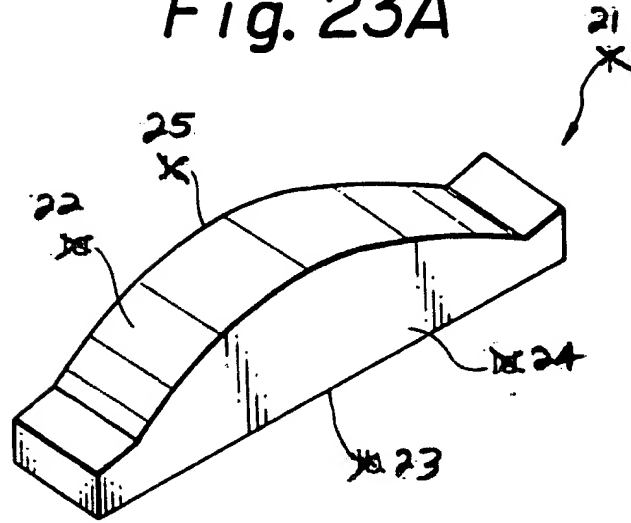


Fig. 23B

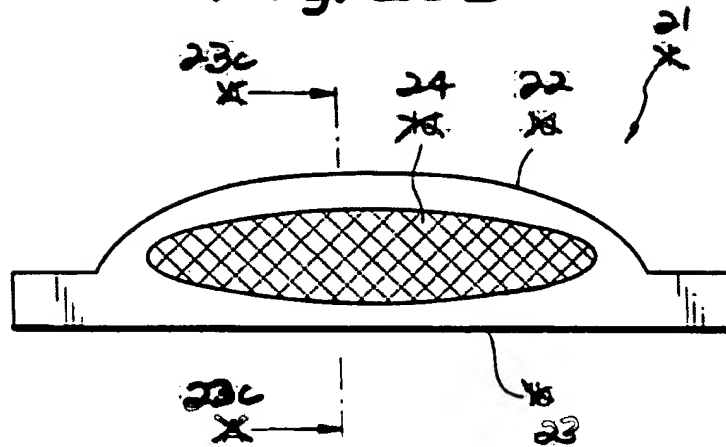
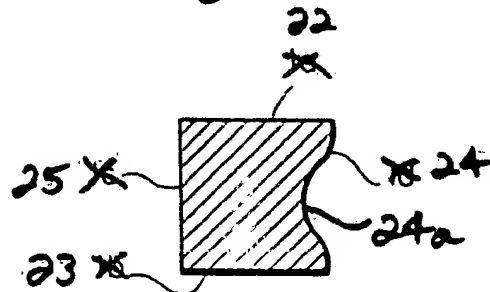


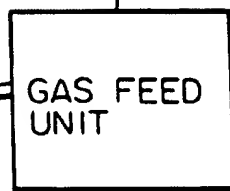
Fig. 23C



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66



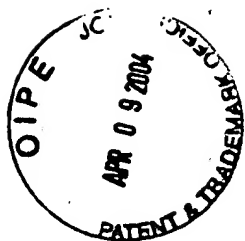


Fig. 25A

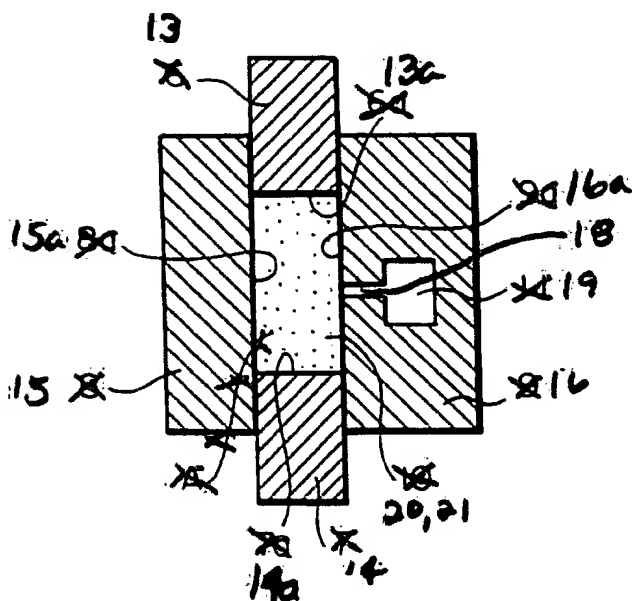
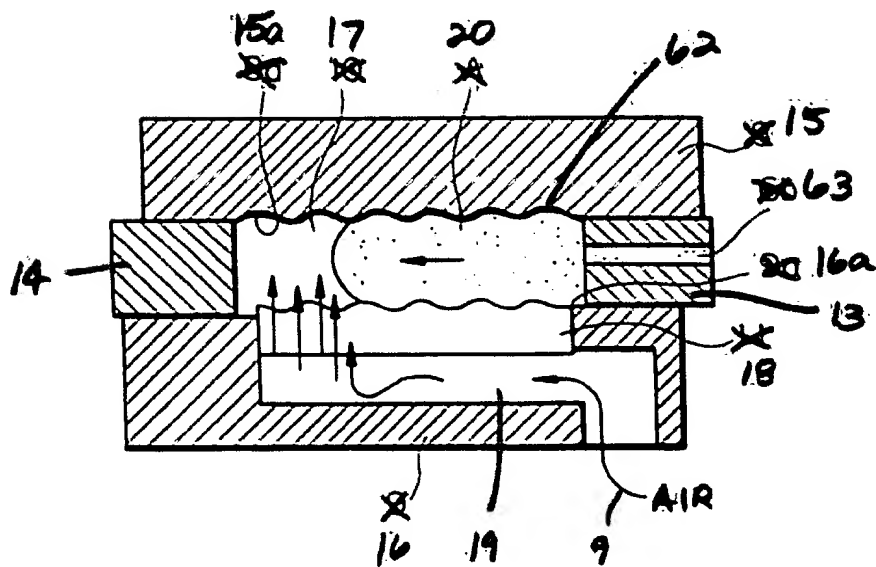


Fig. 25B



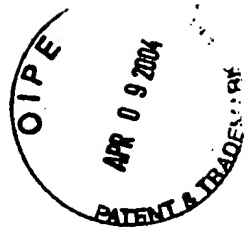


Fig. 26

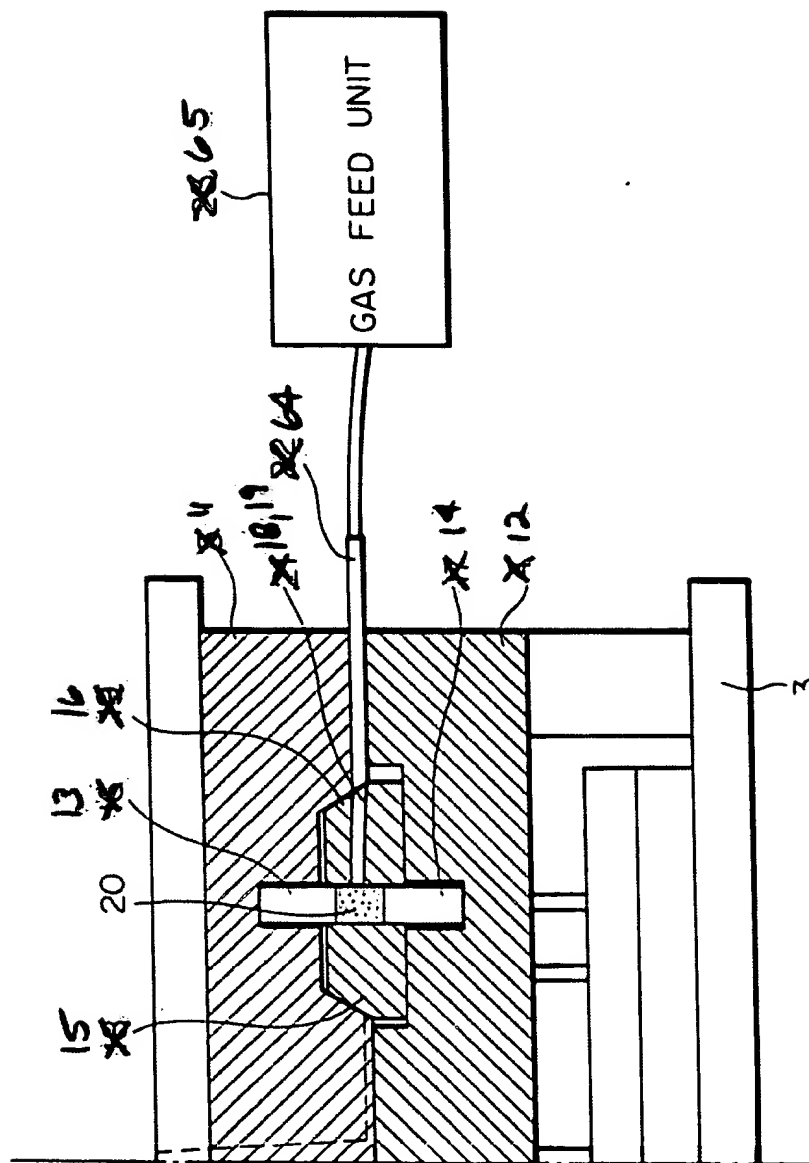




Fig. 27A

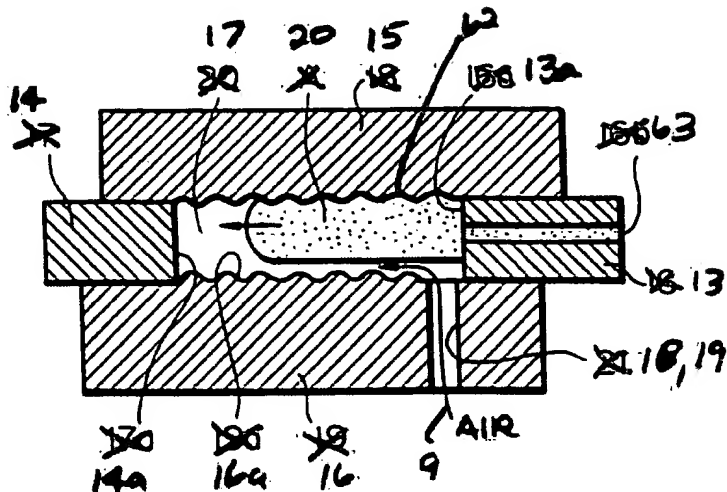


Fig. 27B

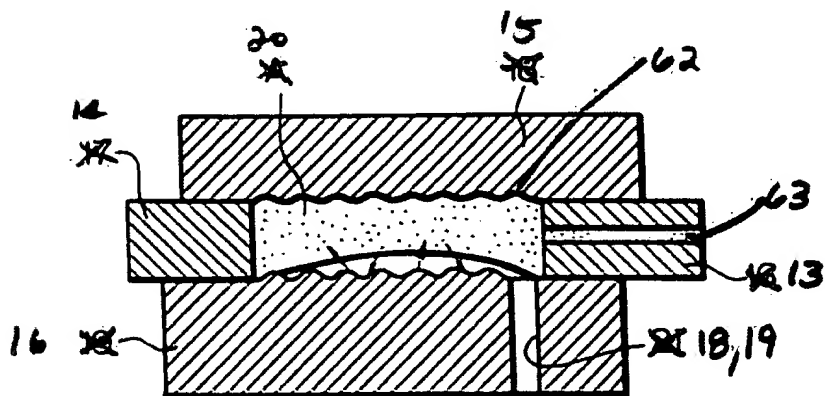


Fig. 27C

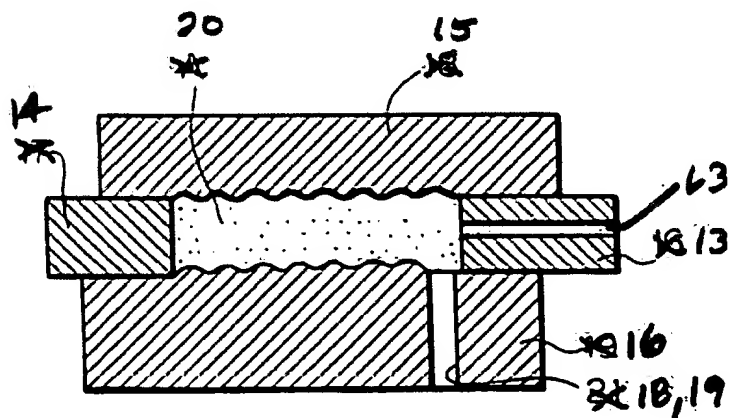
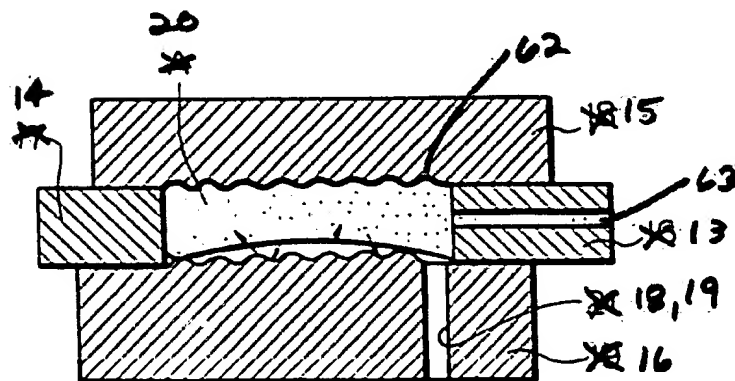


Fig. 27D



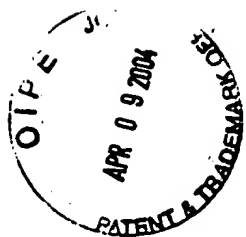


Fig. 28A

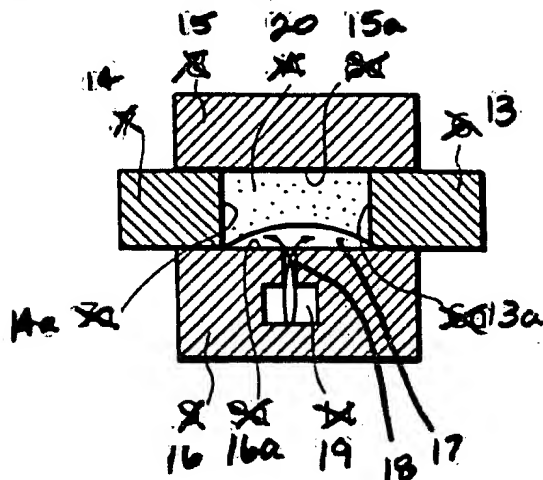


Fig. 28B

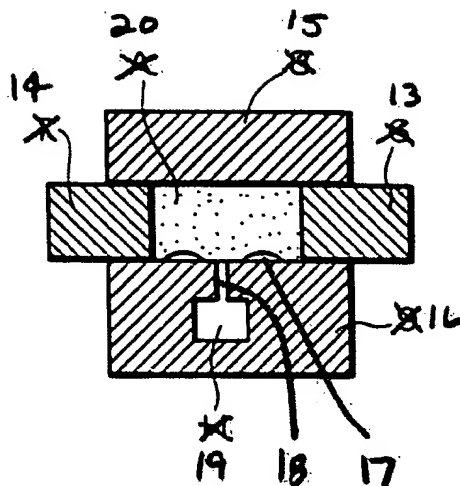


Fig. 28C

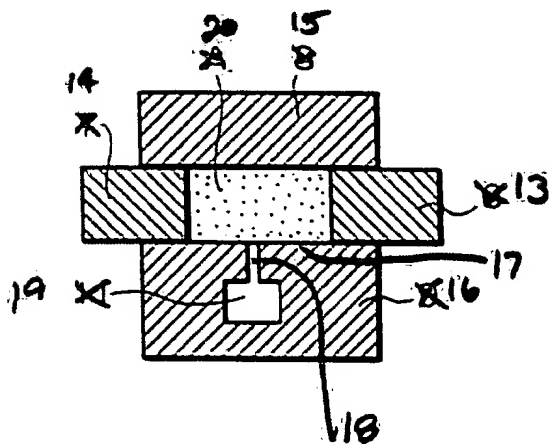
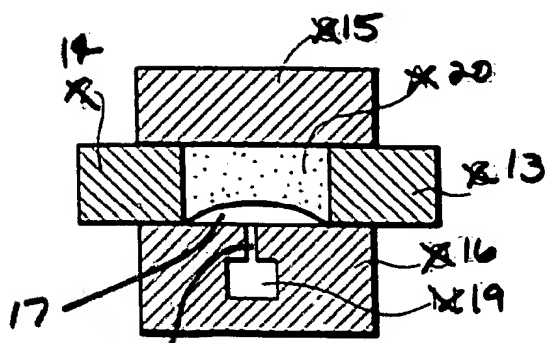


Fig. 28D



A schematic diagram of a gas feed unit assembly. A large rectangular block on the left represents a main component. To its right is a smaller rectangular block labeled "GAS FEED UNIT". Two horizontal lines connect the main block to the gas feed unit. The top line is labeled "3618" and the bottom line is labeled "3660". Above the main block, there are four vertical lines with labels: "11" (top left), "16" (top center-left), "11" (top center-right), and "64" (top right). Below these labels are the numbers "28", "20", "32", and "34" respectively. A dashed line labeled "3665" connects the right side of the main block to the right side of the gas feed unit. At the bottom of the main block, there is a label "3218".

This diagram shows a cross-sectional view of a combustion chamber assembly. A central combustion chamber (10) is defined by a top wall (17) and a bottom wall (16). The top wall (17) includes a central opening (15) and side openings (14, 14a). The bottom wall (16) features a rectangular cavity (18) with a U-shaped channel (9) for air flow, labeled "AIR". The chamber is surrounded by a cooling structure (20) with internal passages (26, 26a, 26b, 26c, 26d, 26e, 26f, 26g, 26h, 26i, 26j, 26k, 26l, 26m, 26n, 26o, 26p, 26q, 26r, 26s, 26t, 26u, 26v, 26w, 26x, 26y, 26z). The cooling structure is further defined by a top flange (13a) and a bottom flange (13b). The entire assembly is supported by a base (12).

[illegible]

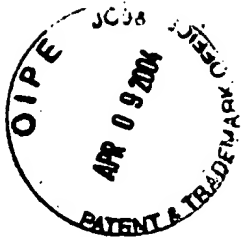
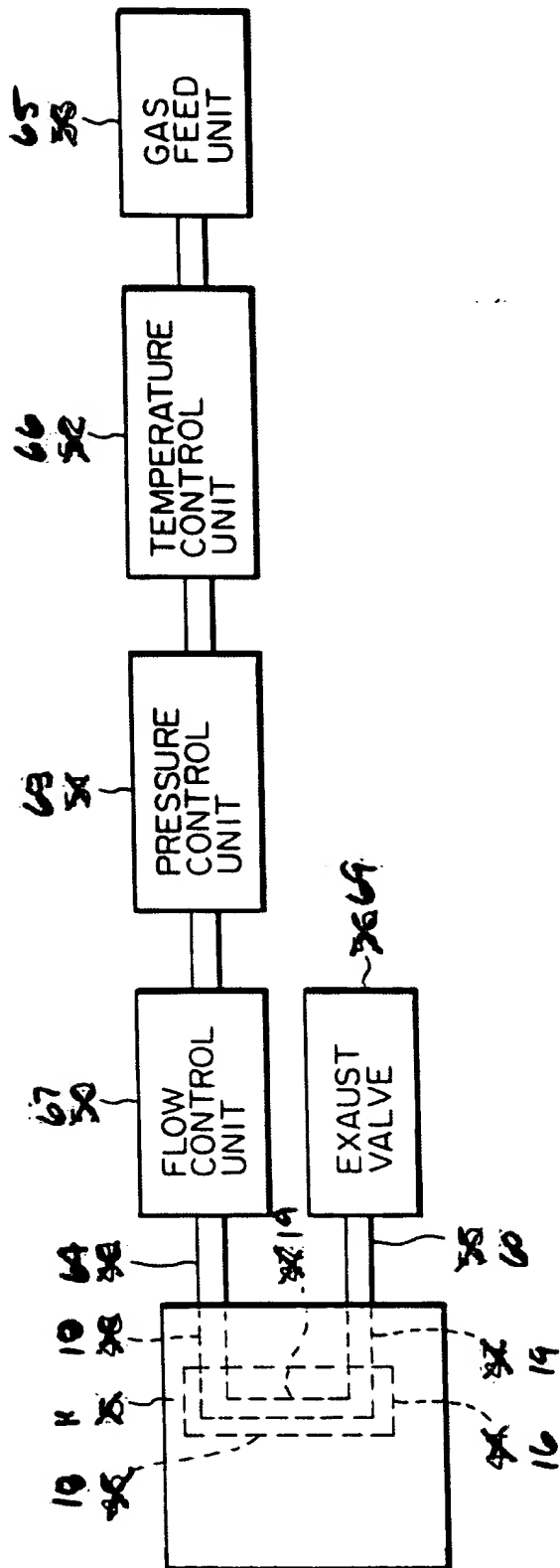


Fig. 31



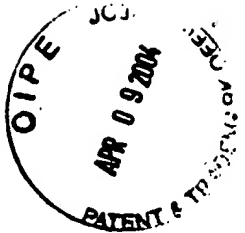


Fig. 32A

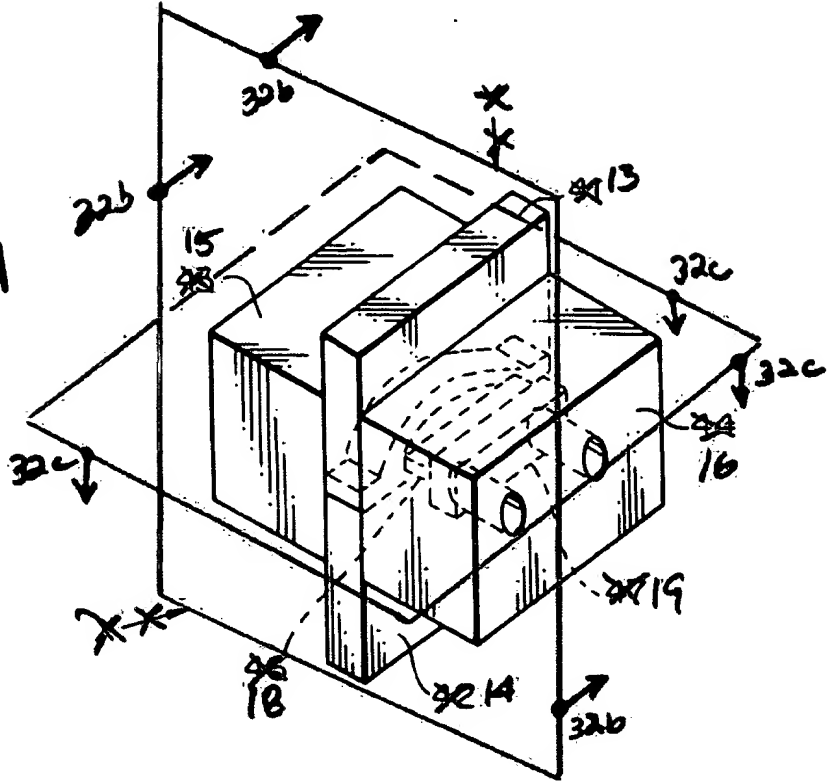


Fig. 32B

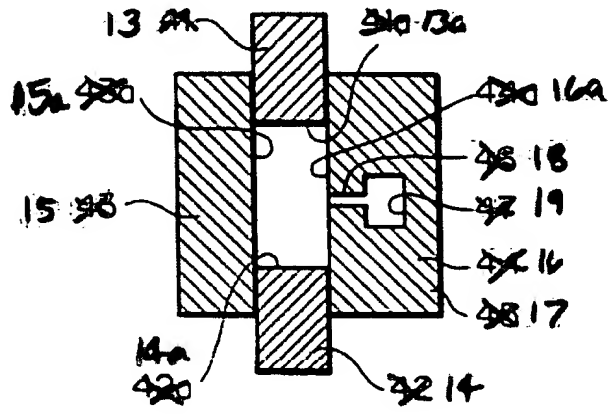
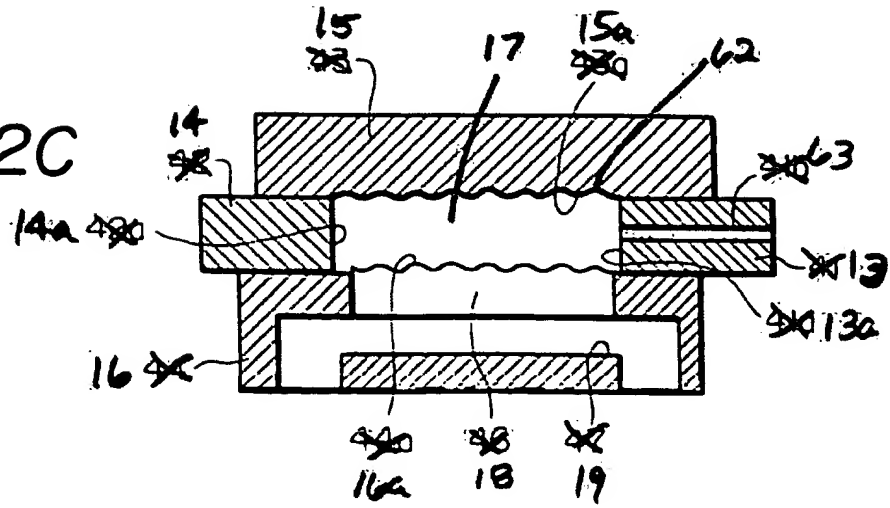


Fig. 32C



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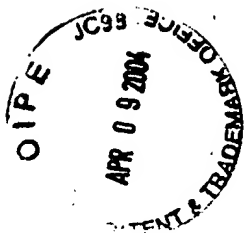


Fig. 34A

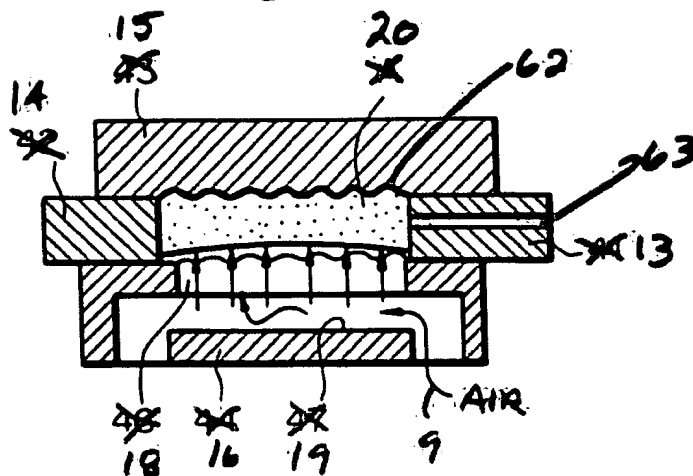


Fig. 34B

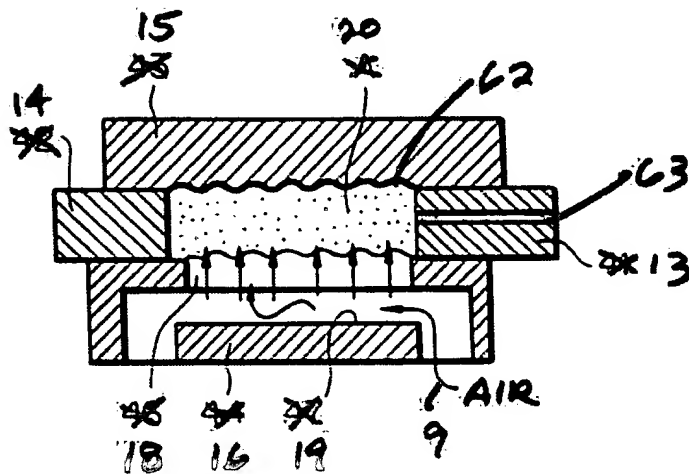
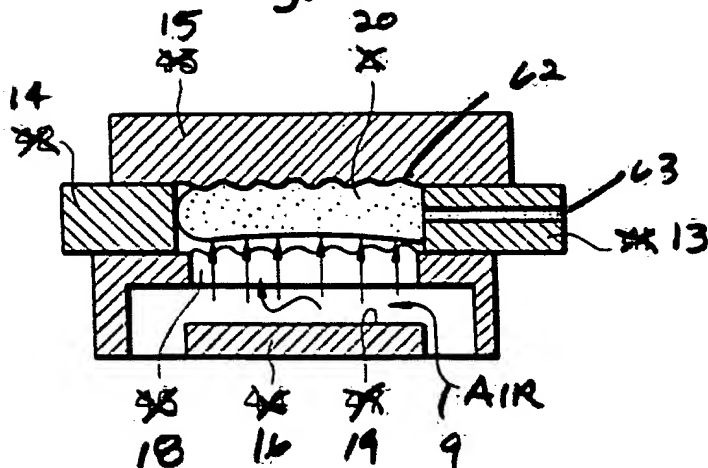
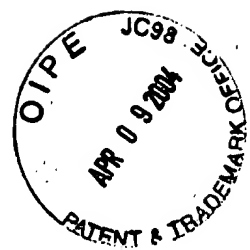


Fig. 34C





OBLON, SPIVAK, et al.
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Inventor: Toshihiro KANEMATSU, et al.
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Reply to OA dated: December 9, 2003
Annotated Sheets Showing Changes

Fig. 35

